THE MERCK INDEX

AN ENCYCLOPEDIA OF
CHEMICALS, DRUGS, AND BIOLOGICALS

TWELFTH EDITION

Susan Budavari, *Editor*
Maryadele J. O'Neil, *Senior Associate Editor*
Ann Smith, *Associate Editor*
Patricia E. Heckelman, *Assistant Editor*
Joanne F. Kinneary, *Assistant Editor*

Published by
Merck Research Laboratories
Division of

MERCK & CO., INC.

Whitehouse Station, NJ

1996

Crystals from ethanol and ether, mp 232-235° (dec). $[\alpha]_D^{25}$ −39° (c = 1 in 1*N* aq HCl). Also cited as crystals from water and L-ascorbic acid, mp 229-232° (dec) (Ohashi). $[\alpha]_D^{25}$ −42.0° (c = 1 in 1*N* aq HCl).

THERAP CAT: Antiparkinsonian.

3514. DSIP. *Delta sleep-inducing peptide (rabbit);* delta sleep peptide; delta sleep factor. $C_{35}H_{48}N_{10}O_{15}$; mol wt 848.82. C 49.53%, H 5.70%, N 16.50%, O 28.27%. A nonapeptide that shows enhancement and induction of delta (slow-wave) and spindle EEG patterns. Its occurrence was suspected during dialysis of cerebral venous blood of rabbits during sleep induced by electrical stimulation of the thalamus: M. Monnier, L. Hösli, *Science* **146,** 796 (1964). Initial isoln: *eidem, Pflügers Arch.* **282,** 60 (1965). Isoln, characterization: G. A. Schoenenberger *et al., Experientia* **28,** 919 (1972). Amino acid sequence, synthesis of DSIP and analogs: G. A. Schoenenberger, M. Monnier, *Proc. Nat. Acad. Sci. USA* **74,** 1282 (1977). Solid phase synthesis: Y. P. Shvachkin *et al., Zh. Obshch. Khim.* **51,** 719 (1981). *C.A.* **95,** 43644s (1981). Rapid liquid phase synthesis: S. Nozaki, I. Muramatsu, *Bull. Chem. Soc. Japan* **55,** 2165 (1982). HPLC separation: M. Dizaroglu *et al., Chromatogr.* **237,** 417 (1982). Effect on human sleep: D. Schneider-Helmert *et al., Lancet* **1,** 1205 (1981); *eidem, Int. J. Clin. Pharmacol. Ther. Toxicol.* **19,** 341 (1981); D. Schneider-Helmert, G. A. Schoenenberger, *Experientia* **37,** 913 (1981).

Trp–Ala–Gly–Gly–Asp–Ala–Ser–Gly–Glu

3515. DTBP. *Bis(1,1-Dimethylethyl) peroxide;* di-*tert*-butyl peroxide. $C_8H_{18}O_2$; mol wt 146.23. C 65.71%, H 12.41%, O 21.88%. $(CH_3)_3COOC(CH_3)_3$

Flammable liq; d_4^{20} 0.7940; mp −40°; bp_{88} 80°; n_D^{20} 1.3890. Flash pt (Tag open cup) 65°F (18°C). Soluble in organic solvents, in most resin monomers and in partial polymers. Soly in water about 0.01%.

USE: As polymerization catalyst.

3516. Dulcamara. Bittersweet; woody nightshade; scarlet berry. Dried stems of *Solanum dulcamara* L., *Solanaceae. Habit.* Europe, Western Asia, Northern Africa, naturad in U.S. *Constit.* Solanicene (about 1%), dulcamarin, dulcamaric and dulcamaretic acids.

3517. Dulcin. *(4-Ethoxyphenyl)urea; p*-phenetolcarbamide; *p*-phenetylurea; Sucrol; Valzin. $C_9H_{12}N_2O_2$; mol wt 180.21. C 59.99%, H 6.71%, N 15.55%, O 17.76%. Made by treating *p*-phenetidine with phosgene and then with ammonia: Berlinerblau, *J. Prakt. Chem.* **30,** 103 (1883); from *p*-phenetidine and urea: Kurzer, *Org. Syn.* **coll. vol. IV,** 52 (1963).

Lustrous needles; very sweet taste—about 250 times as sweet as cane sugar. mp 173-174°. Sol in 800 parts cold water, 50 parts boiling water, 25 parts alcohol.

USE: Non-nutritive sweetener.

3518. Duloxetine. *(S)-N-Methyl-γ-(1-naphthaleloxy)-2-thiophenepropanamine;* (+)-(*S*)-*N*-methyl-γ-(1-naphthyloxy)-2-thiophenepropylamine; (+)-*N*-methyl-3-(1-naphthaleloxy)-3-(2-thienyl)propanamine; LY-248686. $C_{18}H_{19}NOS$; mol wt 297.42. C 72.69%, H 6.44%, N 4.71%, O 5.38%, S 10.78%. Dual serotonin and norepinephrine uptake inhibitor. Prepn: D. W. Robertson *et al.,* **Eur.** pat. **Appl. 273,658;** *eidem,* **U.S.** pat. **5,023,269** (1988, 1991 both to Lilly); and abs config: J. Deeter *et al., Tetrahedron Letters* **31,** 7101 (1990). Improved process: R. A. Berglund, **U.S.** pat. **5,362,886** (1994 to Lilly). Pharmacology: D. T. Wong *et al., Neuropsychopharmacology* **8,** 23 (1993). Neurochemical effects *in vivo:* R. W. Fuller *et al., J. Pharmacol. Exp. Ther.* **269,** 132 (1994). Determn of chiral purity: E. C. Rickard, R. J. Bopp, *J. Chromatog. A* **680,** 609 (1994).

Hydrochloride, $C_{18}H_{19}NOS.HCl$. White solid. pKa in DMF-water (66:34): 9.6.

THERAP CAT: Antidepressant.

3519. Durapatite. *Hydroxylapatite;* calcium phosphate hydroxide; calcium orthophosphate basic; hydroxyapatite: Alveograf; Ossopan; Periograf. $3Ca_3(PO_4)_2.Ca(OH)_2$ or $Ca_{10}(PO_4)_6(OH)_2$. Also considered as pentacalcium monohydroxyorthophosphate $Ca_5(OH)(PO_4)_3$. Calcd as $Ca_{10}H_2O_{26}P_6$: Ca 39.89%, H 0.20%, O 41.41%, P 18.50%. Occurs as a mineral in phosphate rock. Constitutes the mineral portion of bone. Prepn from $Ca(NO_3)_2$ and KH_2PO_4: Waring-ton, *J. Chem. Soc.* **26,** 983 (1873); Rathje, *Ber.* **74,** 342 (1941); Hayek in *Handbook of Preparative Inorganic Chemistry,* G. Brauer, Ed. (Academic Press, 2nd ed., 1963) p 545; from calcium phosphate, dibasic: Perloff, Posner, *Inorg. Syn.* **6,** 16 (1960); from $Ca(NO_3)_2.4H_2O$ and $(NH_4)_2PO_4$ plus NH_4OH: Hayek, Newesely, *ibid.* 7, 63 (1963). Formation and structure of synthetic bone hydroxyapatites: A. S. Posner *et al., Prog. Cryst. Growth Charact.* **3,** 3 (1980).

Hexagonal needles arranged in rosettes. Dec above 1100°. Practically insol in water, even when freshly prepd. Crystallographic data: a_0 9.425; C_0 6.935; C_0/a_0 0.736.

USE: Prosthetic aid (artificial bone and teeth).

THERAP CAT: Calcium supplement; phosphorus supplement.

3520. Durene. *1,2,4,5-Tetramethylbenzene;* Durol. $C_{10}H_{14}$; mol wt 134.22. C 89.49%, H 10.51%. Occurs in coal tar. Usually prepd from xylene and methyl chloride in the presence of $AlCl_3$: Smith, *Org. Syn.* **vol. 10,** 32 (1930); *cf.* Smith, Dobrovolny, *J. Am. Chem. Soc.* **48,** 1413 (1926).

Scales with camphor-like odor from alcohol. d_4^{15} 0.84. mp 80°. bp 191-193°. Sublimes and is volatile with steam. Insol in water; freely sol in alcohol, ether, benzene.

3521. Durohydroquinone. *2,3,5,6-Tetramethyl-1,4-benzenediol;* tetramethyl-*p*-hydroquinone; dihydroxydurene. $C_{10}H_{14}O_2$; mol wt 166.22. C 72.26%, H 8.49%, O 19.25%. For prepn *see* refs under Duroquinone.

Needles from alcohol. mp 233°. Begins to sinter at 220°. Sparingly sol in ether. Treatment with ferric chloride yields durequinone.

Diacetyldurohydroquinone, needles from alc, mp 207°.

3522. Duroquinone. *2,3,5,6-Tetramethyl-2,5-cyclohexadiene-1,4-dione;* tetramethyl-*p*-benzoquinone. $C_{10}H_{12}O_2$; mol wt 164.20. C 73.15%, H 7.37%, O 19.49%. Prepn by reduc-